FIRST SEMESTER B.Sc. DEGREE EXAMINATION NOVEMBER 2014

(CUCBCSS–UG)

Complementary Course – Chemistry

CHE 1C 01 – GENERAL CHEMISTRY

Time : Three Hours   Maximum : 64 Marks

Part A (One Word/Sentence)

*Answer **all** questions.*

Each question carries 1 mark.

1. In the modern periodic table, elements are arranged in the increasing order of

2. The conjugate base of NH_4^+ is ——————————

3. Diphenyl amine is a   indicator.

4. A solution of known concentration is called

5.   theory is used to explain the shapes of molecules and ions.

6. The number of electrons in an orbital is restricted to two. This is in accordance with ——

7. Emission of ——————— from a radioactive element does not change its charge or mass.

8. The (4n + 1) radioactive decay series is otherwise called

9. The metal present in chlorophyll is ——————————

10. Protein with a prosthetic group is known as ——————————

(10 x 1 = 10 marks)

Part B (Short Answer)

*Answer any **seven** questions.*

Each question carries 2 marks.

11. **Calculate the mass of Mohr's salt (E = 392) for 100 ml 0.1 N solution.**

12. **Find the oxidation number of P' in $P_2O_7^{4-}$ and H_3PO_4.**

13. What are redox titrations? Give *one* example.

14. Differentiate between accuracy and precision.

15. Write down the Schrodinger wave equation and explain the terms.

16. Calculate the number of molecules in 5.6 L of CO_2 gas at STP.

Turn over

17. Write any *two* units of radioactivity.

18. Write briefly on artificial radioactivity.

19. Give the names of any *two* nuclear power stations in India.

20. What is hydrogen bonding? Explain using H_2O molecule.

(7 x 2 = 14

Part C (Paragraph)
Answer any **four** *questions.*
Each question carries 5 marks.

21. Define ionization enthalpy. How does it vary along a period and down a group? Expl

22. Explain the principle and advantages of double burette method of titration.

23. Outline the postulates of Bohr theory and mention any *two* limitations of the theory.

24. Discuss the Pauling scale of electro negativity.

25. Write note on the applications of radioactive isotopes.

26. Explain the structure and mechanism of action of Na-K pump.

(4 x 5 = 20 marks)

Part D (Essay)
Answer any two questions.
Each question carries 10 marks.

27. (a) Explain the application of common ion effect and solubility product in qualitative analysis

(b) Write briefly **on** Mass defect and Binding energy.

(6 + 4 = 10 marks)

28. What are the features of hybridization? Describe sp^3d, sp^3d^2 and sp^3d^3 hybridizations using suitable examples.

29. (a) Draw the molecular orbital diagram of CO molecule and calculate the bond order.

(b) Write briefly on the different theories of acids and bases.

(5 + 5 = 10 mark

30. Discuss the mechanism of O_2 transport by heamoglobin.

[2 x 10 = 20 ma: